



11159 - The True Galactic Bulge Luminosity Function

Cycle: 16, Proposal Category: GO

(Availability Mode: SUPPORTED)

INVESTIGATORS

| <i>Name</i> | <i>Institution</i> | <i>E-Mail</i> |
|--|---|----------------------------|
| Dr. R. Michael Rich (PI) | University of California - Los Angeles | rmr@astro.ucla.edu |
| Dr. Manuela Zoccali (CoI) (ESA Member) | European Southern Observatory - Germany | arenzini@eso.org |
| Dr. Alvio Renzini (CoI) (ESA Member) | Osservatorio Astronomico di Padova | arenzini@pd.astro.it |
| Dr. Santi Cassisi (CoI) (ESA Member) | INAF, Osservatorio Astronomico di Teramo | cassisi@astrte.te.astro.it |
| Dr. David B. Reitzel (CoI) | University of California - Los Angeles | reitzel@astro.ucla.edu |
| Dr. Jay Anderson (CoI) | Rice University | jay@eeyore.rice.edu |
| Dr. William I. Clarkson (CoI) | Space Telescope Science Institute | clarkson@stsci.edu |

VISITS

| <i>Visit</i> | <i>Targets used in Visit</i> | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 01 | (1) NGC6558-FIELD-1 ANY | NIC1 NIC2 NIC3 | 1 | 17-Jan-2008 22:58:29.0 | yes |
| 02 | (2) NGC6558-FIELD-2 ANY | NIC1 NIC2 NIC3 | 2 | 17-Jan-2008 22:58:43.0 | yes |

| <i>Visit</i> | <i>Targets used in Visit</i> | <i>Configurations used in Visit</i> | <i>Orbits Used</i> | <i>Last Orbit Planner Run</i> | <i>OP Current with Visit?</i> |
|--------------|------------------------------|-------------------------------------|--------------------|-------------------------------|-------------------------------|
| 03 | (3) NGC6558-FIELD-3 ANY | NIC1 NIC2 NIC3 | 1 | 17-Jan-2008 22:58:52.0 | yes |
| 04 | (4) NGC6558-FIELD-4 ANY | NIC1 NIC2 NIC3 | 2 | 17-Jan-2008 22:59:04.0 | yes |
| 05 | (5) NGC6558-FIELD-5 ANY | NIC1 NIC2 NIC3 | 1 | 17-Jan-2008 22:59:11.0 | yes |

7 Total Orbits Used

ABSTRACT

We propose to obtain second epoch imaging of the deep Galactic bulge field observed using NICMOS by Zoccali et al. (2000). The bulge luminosity and mass function suffered from 30-50% contamination by foreground disk stars, which was impossible to correct for in the original study.

Revisiting the field after 9 years, we propose to segregate the foreground disk stars because they have large transverse velocities, thus revealing the luminosity function of Galactic bulge low mass stars to near the hydrogen burning limit. The slope of the mass function has implications for galaxy formation and for understanding the nature of microlensing in the Galactic bulge.

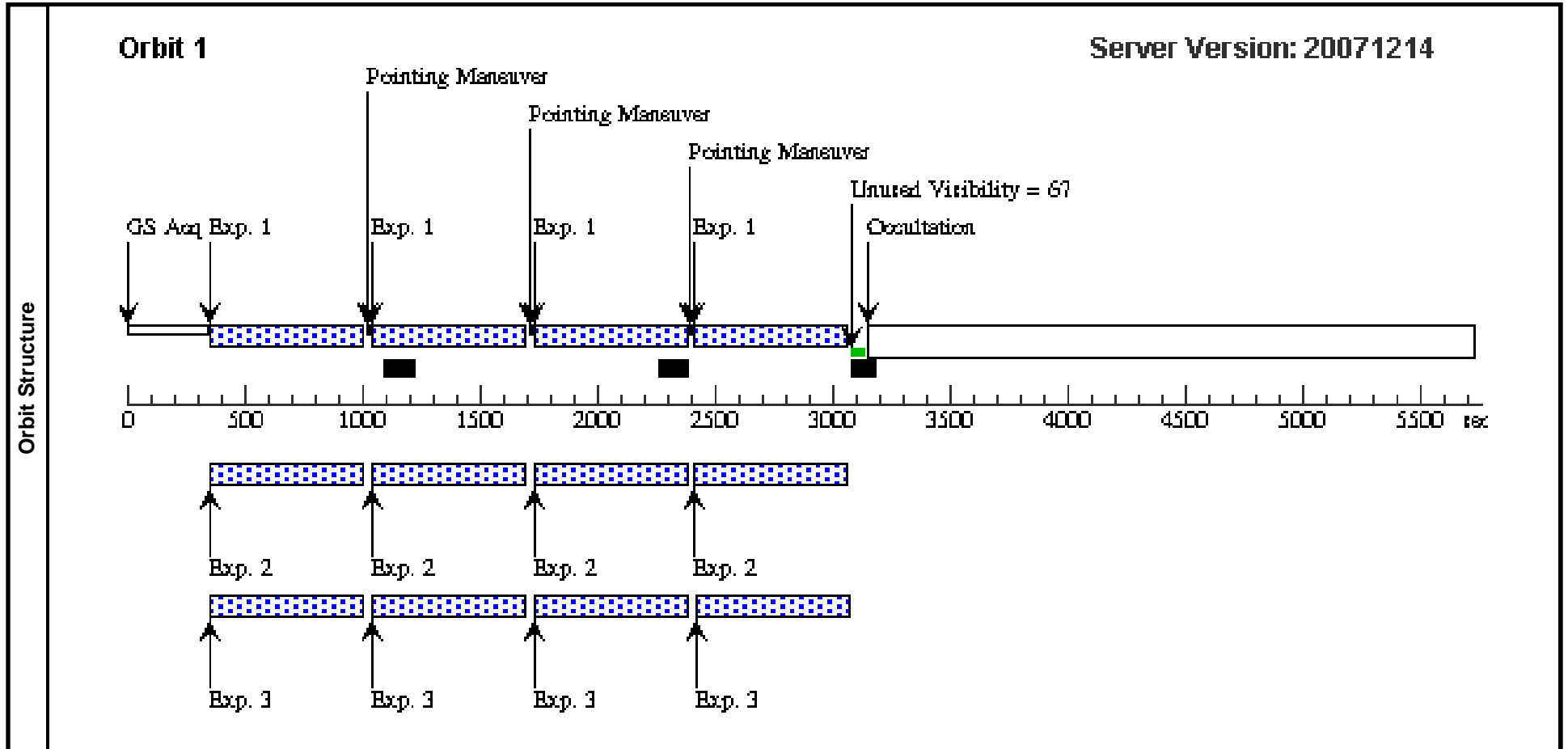
OBSERVING DESCRIPTION

This is second epoch imaging of a Galactic bulge field perviously observed with NICMOS. All 3 cameras are to be run, but only NIC1 and NIC 2 to provide data useful for proper motion measurement. The NIC2 is to be run in F110W and NIC2 in F160W. We aim to precisely reproduce the first epoch observations.

Proposal 11159 - Visit 01 - The True Galactic Bulge Luminosity Function

Fri Jan 18 03:59:15 GMT 2008

| Visit | | Proposal 11159, Visit 01, implementation Diagnostic Status: No Diagnostics Scientific Instruments: NIC2, NIC3, NIC1 Special Requirements: ORIENT 272.5D TO 272.75 D | | | | | | | | |
|---------------|-----|--|---|--------------------------|------------------|----------------------------------|---------------|---|--|-------|
| Patterns | # | Primary Pattern | | Secondary Pattern | Exposures | | | | | |
| | (2) | Pattern Type=NIC-SPIRAL-DITH Coordinate Frame=POS-TARG Purpose=DITHER Pattern Orientation=0.0 Number Of Points=4 Angle Between Sides= Point Spacing=0.4 Center Pattern=false Line Spacing= | | | (1-3) | | | | | |
| Fixed Targets | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | | | | |
| | (1) | NGC6558-FIELD-1 | RA: 18 11 3.8000 (272.7658333d) Dec: -31 45 49.10 (-31.76364d) Equinox: J2000 | | V=17+/-1 H=25 | Reference Frame: ICRS | | | | |
| Exposures | # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
| | 1 | prime nic2 | (1) NGC6558-FIELD-1 | NIC2, MULTIACCUM, NIC2 | F110W | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (2) Prime + Parallel Group up 1-3 | [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] | [1] |
| | 2 | par nic1 | ANY | NIC1, MULTIACCUM, NIC1 | F110W | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (2) Prime + Parallel Group up 1-3 | [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] | [1] |
| | 3 | nic3 par | ANY | NIC3, MULTIACCUM, NIC3 | F222M | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (2) Prime + Parallel Group up 1-3 | [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] | [1] |



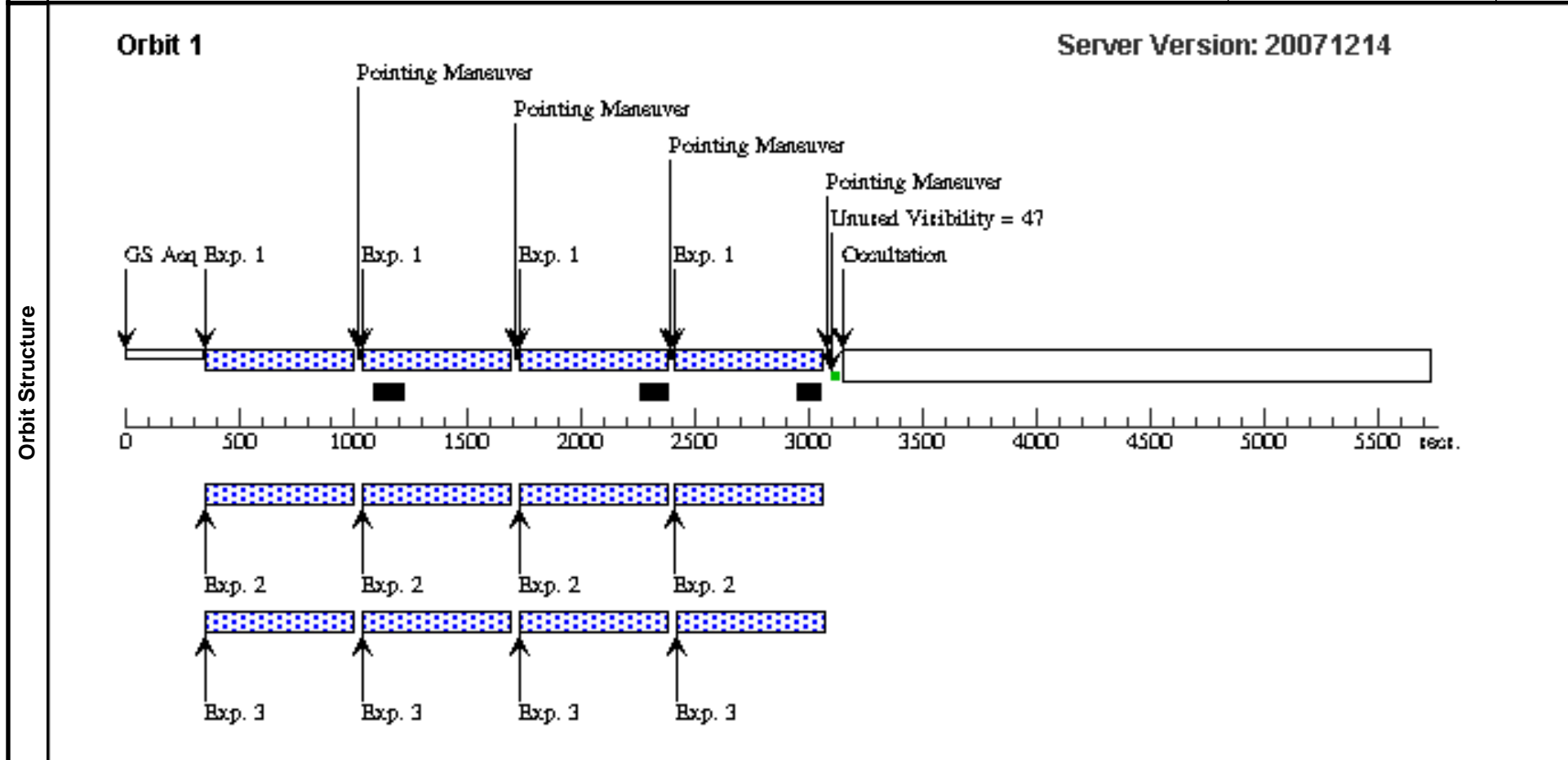
Proposal 11159 - Visit 02 - The True Galactic Bulge Luminosity Function

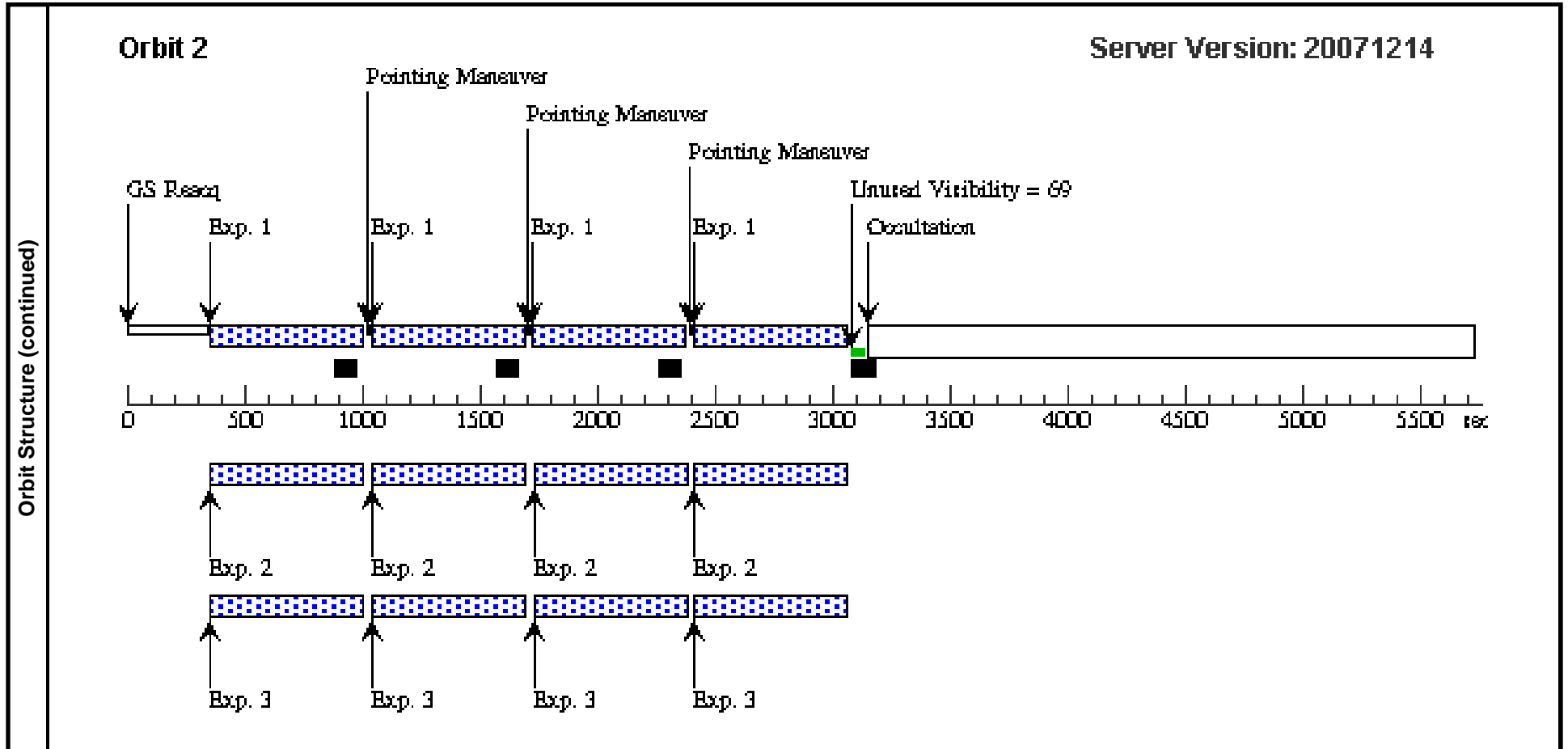
Fri Jan 18 03:59:16 GMT 2008

| Visit | Proposal 11159, Visit 02, implementation Diagnostic Status: No Diagnostics Scientific Instruments: NIC2, NIC3, NIC1 Special Requirements: ORIENT 272.5D TO 272.75 D | | | | | | | | | | |
|---------------|--|--------------------|---|---------------------------|---------------|----------------------------------|-------------------|---|--|-----------|-------|
| | Patterns | # | Primary Pattern | | | | Secondary Pattern | | | Exposures | |
| | | (1) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | | | | | | (1-3) |
| | | Purpose=DITHER | Pattern Orientation=0.0 | | | | | | | | |
| | | Number Of Points=8 | Angle Between Sides= | | | | | | | | |
| | | Point Spacing=0.4 | Center Pattern=false | | | | | | | | |
| | | Line Spacing= | | | | | | | | | |
| Fixed Targets | # | Name | Target Coordinates | Targ. Coord. Corrections | | Fluxes | | Miscellaneous | | | |
| | (2) | NGC6558-FIELD-2 | RA: 18 11 3.8400 (272.7660000d) Dec: -31 45 48.60 (-31.76350d) Equinox: J2000 | | | V=17+/-1 H=25 | | Reference Frame: ICRS | | | |
| Exposures | # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | | Orbit |
| | 1 | prime nic2 | (2) NGC6558-FIELD-2 | NIC2, MULTIACCUM, NIC2 | F110W | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (1) Prime + Parallel Group up 1-3 | [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] | | [1] |
| | | | | | | | | | [==>(Pattern 5)] [==>(Pattern 6)] [==>(Pattern 7)] [==>(Pattern 8)] | | [2] |
| | 2 | par nic1 | ANY | NIC1, MULTIACCUM, NIC1 | F110W | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (1) Prime + Parallel Group up 1-3 | [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] | | [1] |
| | | | | | | | | | [==>(Pattern 5)] [==>(Pattern 6)] [==>(Pattern 7)] [==>(Pattern 8)] | | [2] |

Proposal 11159 - Visit 02 - The True Galactic Bulge Luminosity Function

| Exposures (continued) | # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|-----------------------|---|-------|----------|----------------------|------------------------|--------------|----------------------------------|--------|--|--|
| | | 3 | nic3 par | ANY | NIC3, MULTIACCUM, NIC3 | F222M | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (1) Prime + Parallel Group 1-3 | [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)] |
| | | | | | | | | | [=>(Pattern 5)] [=>(Pattern 6)] [=>(Pattern 7)] [=>(Pattern 8)] | [2] |

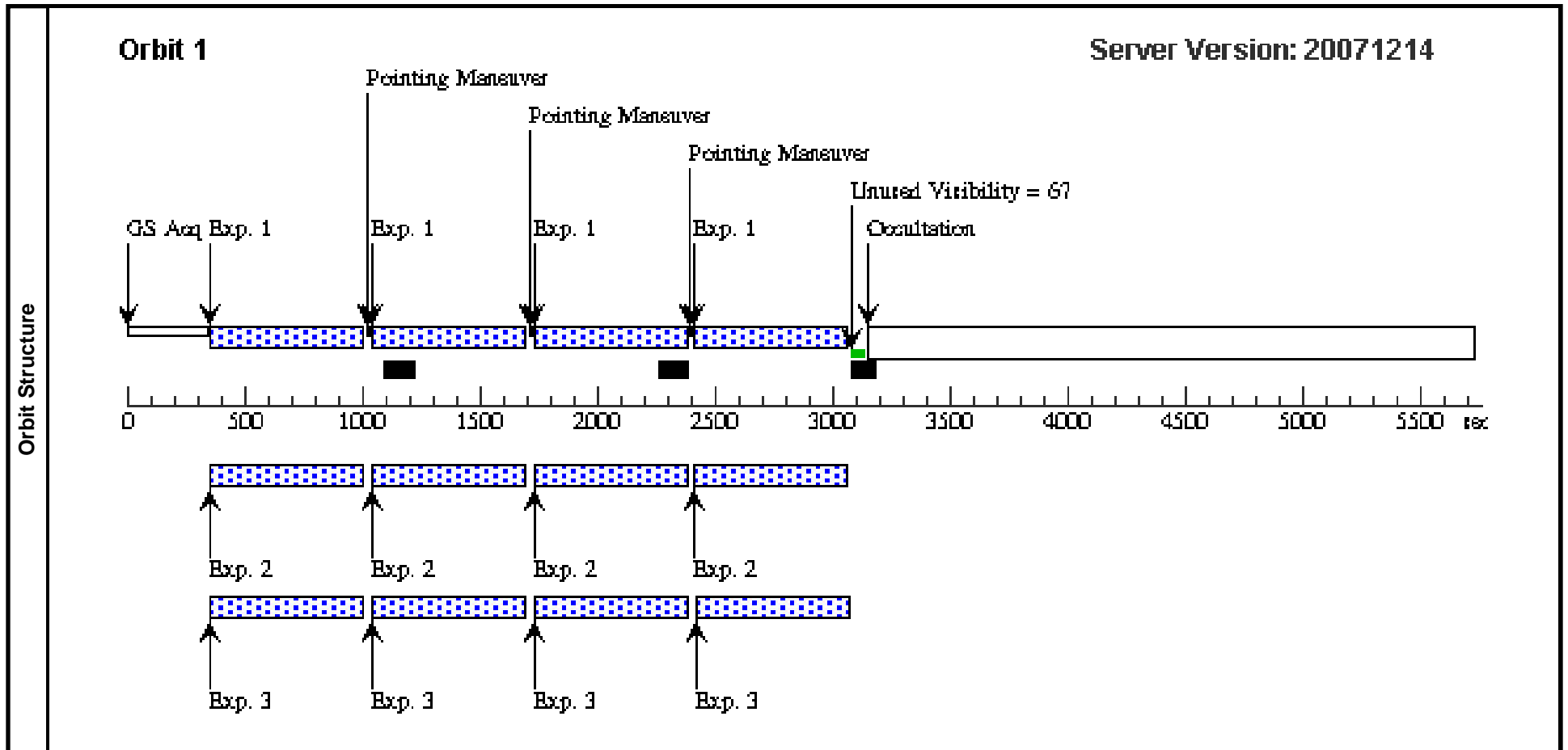




Proposal 11159 - Visit 03 - The True Galactic Bulge Luminosity Function

Fri Jan 18 03:59:17 GMT 2008

| Visit | | Proposal 11159, Visit 03, implementation Diagnostic Status: No Diagnostics Scientific Instruments: NIC2, NIC3, NIC1 Special Requirements: ORIENT 272.5D TO 272.75 D | | | | | | | | |
|---------------|-----|--|---|--------------------------|-------------------|----------------------------------|---------------|---|--|-------|
| Patterns | # | Primary Pattern | | | Secondary Pattern | | Exposures | | | |
| | (2) | Pattern Type=NIC-SPIRAL-DITH Coordinate Frame=POS-TARG Purpose=DITHER Pattern Orientation=0.0 Number Of Points=4 Angle Between Sides= Point Spacing=0.4 Center Pattern=false Line Spacing= | | | (1-3) | | | | | |
| Fixed Targets | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | | | | |
| | (3) | NGC6558-FIELD-3 | RA: 18 11 3.7600 (272.7656667d) Dec: -31 45 48.60 (-31.76350d) Equinox: J2000 | | V=17+/-1 H=25 | Reference Frame: ICRS | | | | |
| Exposures | # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
| | 1 | prime nic2 | (3) NGC6558-FIELD-3 | NIC2, MULTIACCUM, NIC2 | F110W | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (2) Prime + Parallel Group 1-3 | [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)] | [1] |
| | 2 | par nic1 | ANY | NIC1, MULTIACCUM, NIC1 | F110W | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (2) Prime + Parallel Group 1-3 | [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)] | [1] |
| | 3 | nic3 par | ANY | NIC3, MULTIACCUM, NIC3 | F222M | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (2) Prime + Parallel Group 1-3 | [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)] | [1] |



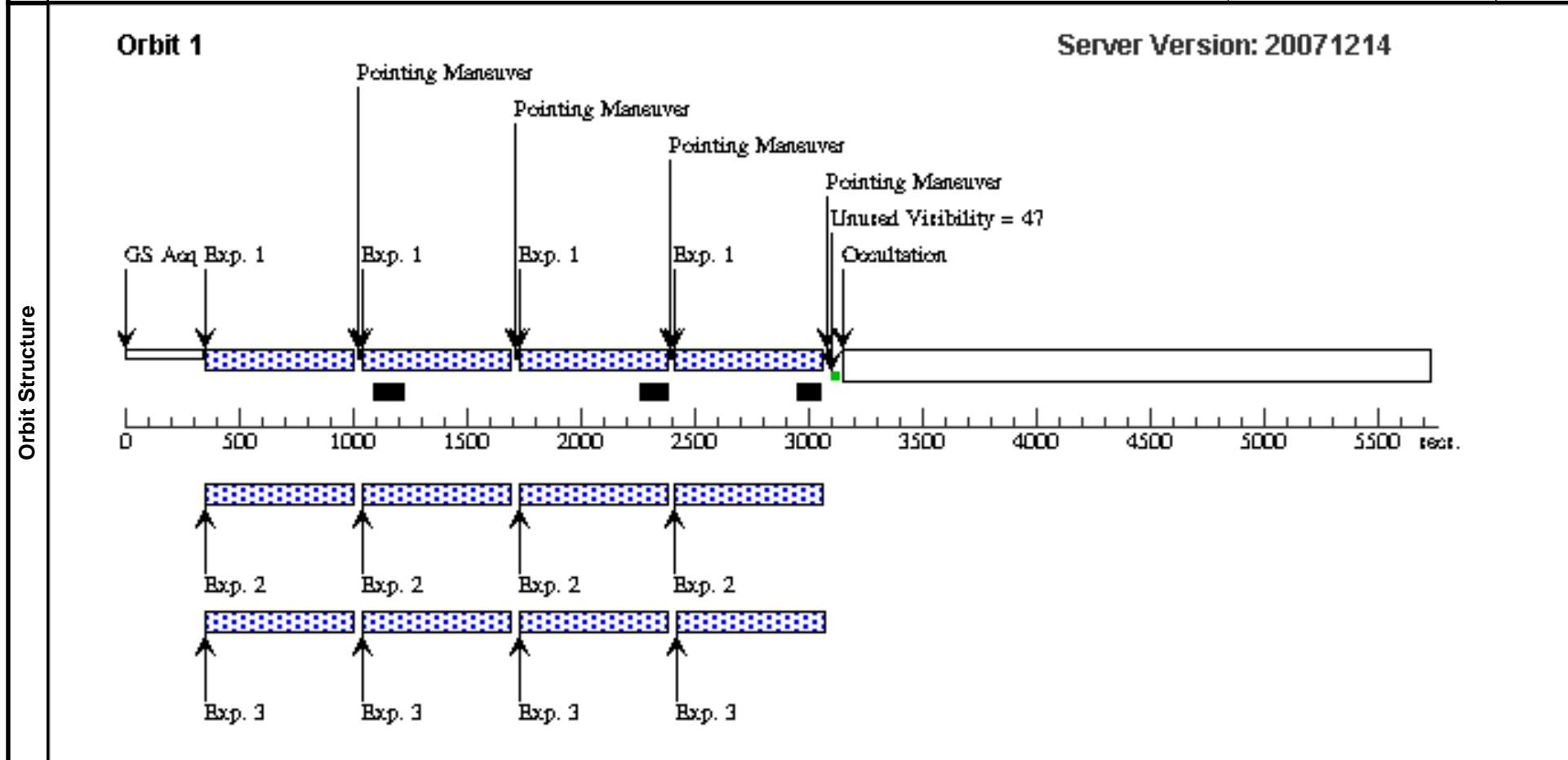
Proposal 11159 - Visit 04 - The True Galactic Bulge Luminosity Function

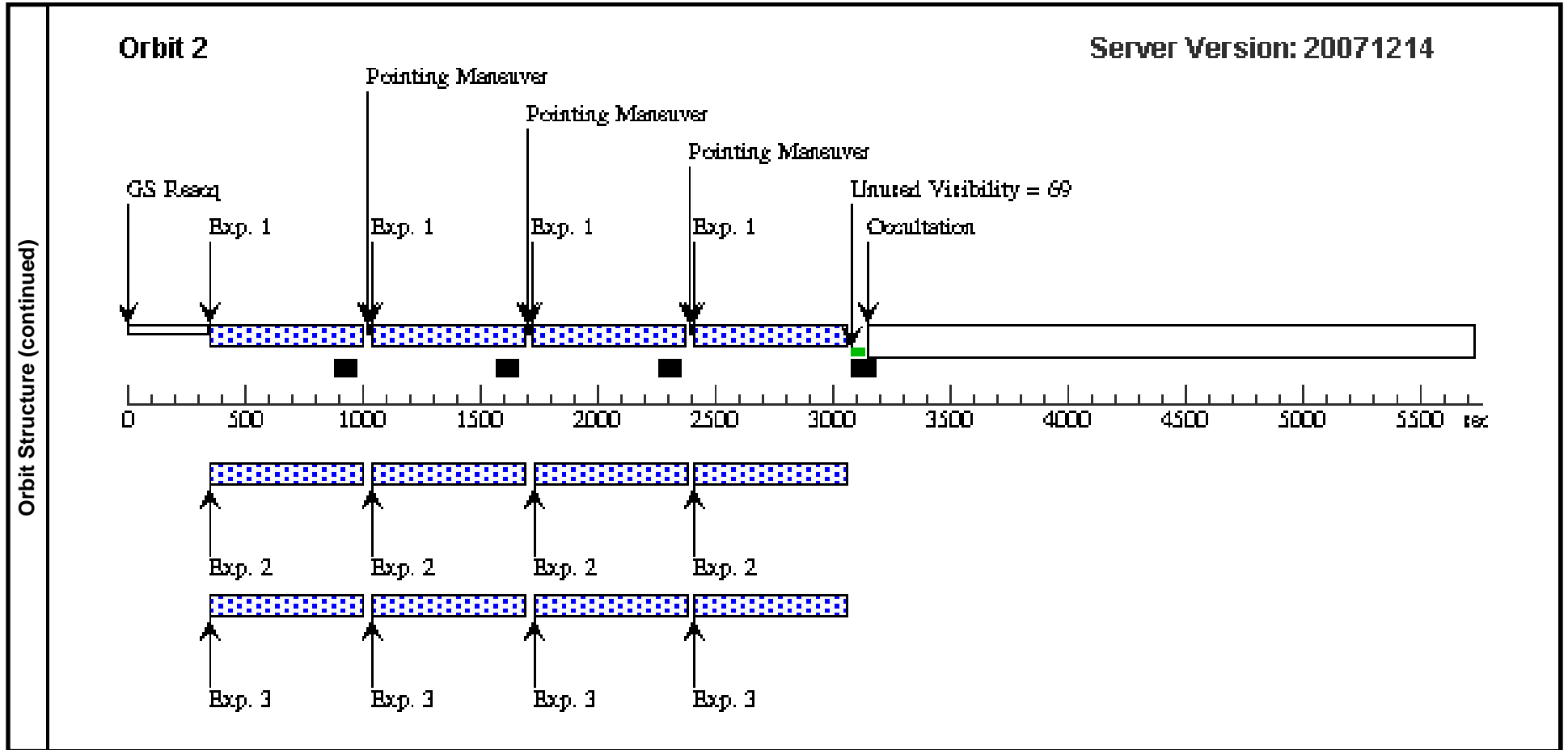
Fri Jan 18 03:59:18 GMT 2008

| Visit | Proposal 11159, Visit 04, implementation Diagnostic Status: No Diagnostics Scientific Instruments: NIC2, NIC3, NIC1 Special Requirements: ORIENT 272.5D TO 272.75 D | | | | | | | | | |
|---------------|--|--------------------|---|---------------------------|---------------|----------------------------------|-------------------|--|--|-----------|
| | Patterns | # | Primary Pattern | | | | Secondary Pattern | | | Exposures |
| | | (1) | Pattern Type=NIC-SPIRAL-DITH | Coordinate Frame=POS-TARG | | | | | | |
| | | Purpose=DITHER | Pattern Orientation=0.0 | | | | | | | |
| | | Number Of Points=8 | Angle Between Sides= | | | | | | | |
| | | Point Spacing=0.4 | Center Pattern=false | | | | | | | |
| | | Line Spacing= | | | | | | | | |
| Fixed Targets | # | Name | Target Coordinates | Targ. Coord. Corrections | | Fluxes | | Miscellaneous | | |
| | (4) | NGC6558-FIELD-4 | RA: 18 11 3.7600 (272.7656667d) Dec: -31 45 49.60 (-31.76378d) Equinox: J2000 | | | V=17+/-1 H=25 | | Reference Frame: ICRS | | |
| Exposures | # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
| | 1 | prime nic2 | (4) NGC6558-FIELD-4 | NIC2, MULTIACCUM, NIC2 | F110W | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (1) Prime + Parallel Group up 1-3 | [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] | [1] |
| | | | | | | | | [==>(Pattern 5)] [==>(Pattern 6)] [==>(Pattern 7)] [==>(Pattern 8)] | [2] | |
| | 2 | par nic1 | ANY | NIC1, MULTIACCUM, NIC1 | F110W | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (1) Prime + Parallel Group up 1-3 | [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] | [1] |
| | | | | | | | | [==>(Pattern 5)] [==>(Pattern 6)] [==>(Pattern 7)] [==>(Pattern 8)] | [2] | |

Proposal 11159 - Visit 04 - The True Galactic Bulge Luminosity Function

| Exposures (continued) | # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
|-----------------------|---|-------|----------|----------------------|------------------------|--------------|----------------------------------|--------|---|--|
| | | 3 | nic3 par | ANY | NIC3, MULTIACCUM, NIC3 | F222M | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (1) Prime + Parallel Group 1-3 | [=>(Pattern 1)] [=>(Pattern 2)] [=>(Pattern 3)] [=>(Pattern 4)] [=>(Pattern 5)] [=>(Pattern 6)] [=>(Pattern 7)] [=>(Pattern 8)] |





Proposal 11159 - Visit 05 - The True Galactic Bulge Luminosity Function

Fri Jan 18 03:59:19 GMT 2008

| Visit | | Proposal 11159, Visit 05, implementation Diagnostic Status: No Diagnostics Scientific Instruments: NIC2, NIC3, NIC1 Special Requirements: ORIENT 272.5D TO 272.75 D | | | | | | | | |
|---------------|-----|--|---|--------------------------|------------------|----------------------------------|---------------|---|--|-------|
| Patterns | # | Primary Pattern | | Secondary Pattern | Exposures | | | | | |
| | (2) | Pattern Type=NIC-SPIRAL-DITH Coordinate Frame=POS-TARG Purpose=DITHER Pattern Orientation=0.0 Number Of Points=4 Angle Between Sides= Point Spacing=0.4 Center Pattern=false Line Spacing= | | | (1-3) | | | | | |
| Fixed Targets | # | Name | Target Coordinates | Targ. Coord. Corrections | Fluxes | Miscellaneous | | | | |
| | (5) | NGC6558-FIELD-5 | RA: 18 11 3.8400 (272.7660000d) Dec: -31 45 49.60 (-31.76378d) Equinox: J2000 | | V=17+/-1 H=25 | Reference Frame: ICRS | | | | |
| Exposures | # | Label | Target | Config,Mode,Aperture | Spectral Els. | Opt. Params. | Special Reqs. | Groups | Exp. Time/[Actual Dur.] | Orbit |
| | 1 | prime nic2 | (5) NGC6558-FIELD-5 | NIC2, MULTIACCUM, NIC2 | F110W | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (2) Prime + Parallel Group up 1-3 | [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] | [1] |
| | 2 | par nic1 | ANY | NIC1, MULTIACCUM, NIC1 | F110W | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (2) Prime + Parallel Group up 1-3 | [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] | [1] |
| | 3 | nic3 par | ANY | NIC3, MULTIACCUM, NIC3 | F222M | SAMP-SEQ=STEP6 4; NSAMP=18 | | Pattern 1-3 (2) Prime + Parallel Group up 1-3 | [==>(Pattern 1)] [==>(Pattern 2)] [==>(Pattern 3)] [==>(Pattern 4)] | [1] |

